

CLAIMS:

1. A surface treating method of a titanium part, comprising the steps of:
 - determining an effective thickness of a hard oxide film to be formed on a surface

5 of the titanium part;

- determining an effective surface roughness of the hard oxide film; and
- oxidation treating the surface of the titanium part under a desired treating temperature and a desired treating time such that both of the determined effective thickness and effective surface roughness are satisfied.

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2. A method as defined in claim 1, wherein the effective thickness of the film corresponds to a required hardness and is determined from a correlation of the hardness against the film thickness of the hard oxide film.

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3. A method as defined in claim 2, wherein the effective surface roughness of the film corresponds to the required hardness and is determined from a correlation of the hardness against the surface roughness of the hard oxide film.

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4. A method as defined in claim 1, wherein the effective thickness and the effective surface roughness of the film are 14 micrometers or less and 3.0 Rz or less, respectively.

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5. A method as defined in claim 1, wherein the desired treating temperature is 730 degrees C or less.

6. A method as defined in claim 1 further comprising the step of treating the surface of the titanium part after oxidation treating step.

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7. An engine valve treated by the surface treating method as defined in claim 1.
8. An engine valve as defined in claim 7, wherein the engine valve having a hard oxide film that has a thickness of 14 micrometers or less and surface roughness of 3.0 Rz or less.